Question Summary with Comments

 # 1 Ability to initiate wireless voice communications by requiring the user to only enter (on his/her radio) a user identification which authenticates and validates the user, registers and sets talk groups/capabilities for the user, and completes all radio network administration for the user's voice communications with other members of the user's agency/jurisdiction and with other agencies/jurisdictions, as authorized.

Organizations that Have This Capability   Comments (if any)

AGILE	Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.
ARJIS	800 MHz radio system with over 127 agencies participating - establish talk groups/identification based on a regional template.
Coast Guard Rescue 21	Rescue 21 provides each regional Group Communication Center (GCC) and mobile unit with Digital Selective Calling (DSC) which provides the capability for automated distress alerting. In addition, Rescue 21 is providing the capability to set up talk groups, as needed, to meet operational requirements.
COPS	Support the development of standards by validating proposed specifications through laboratory testing. Support the interoperability testing of standardized products by acquiring test suites of Project 25 radio equipment.
IWN	The Integrated Wireless Network (IWN) is based on VHF, P.25, trunked architecture with VoIP connectivity. User devices (subscribers) are P.25 compliant radios with user identification capabilities (radio ID) associated with each radio. Each radio will be programmed to support the user's needs to include: talk groups, functionality, OTAR, OTAP, and encryption algorithms. At this time, the system will not incorporate the use of downloading user profiles from the network based on a user entered ID or password.
NCS	Wireless Priority Service (WPS) gives authorized users priority access on commercial wireless networks.
NLECTC -- Southeast	SAAC has shown the ability to 'autoaquire' FM handsets and automatically enter the handset into a call group.
NRL / InfraLynx	The NRL I nfraLynx provides a host of off-the-shelf integrated communications gear. One important element is the ACU 1000 along with the associated radios compromising the first responder incident spectrum.
OLES	On behalf of the NIJ AGILE Program and COPS, standards development in Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum; and acquisition, test and evaluation of Project 25 equipment and interoperability devices.
Project 25	Access to P25 network from an authorized subscriber unit is normally automatic. Most conventional systems are open within the limitation of interoperability on both a technology and frequency basis. It is important to remember that inter-jurisdictional communications should be planned for, authorized, and updated as part of the agency's normal planning, implementation, and maintenance process. This requires close cooperation and a great deal of information exchange on a regular and systemized basis.

Project MESA

Although the Project MESA Statement of Requirements specifically requires interoperability between some existing standardized and proprietary Land Mobile Radio (LMR) services, such as Project 25 and TETRA, in and of itself, is not intended to be a voice LMR communications system. While one of its many primary functions is to be able to support voice communications, those communications services would not normally include public safety dispatch-type service.

In a Project MESA system, the need and dynamics of establishing specific "user grouping" (talk-groups) will depend on the situation at hand and the scope and nature of the emergency being responded to. Inter-agency, agency, inter-jurisdictional and jurisdictional authorization and authentications would either be predefined by inter-local agreements or established on the fly, as may be required to respond to a specific emergency.

Question Summary with Comments

 # 2   Ability for users to transparently communicate, as authorized, with other members of the agency/jurisdiction on a unit-to-group (one-to-many) basis and a unit-to-unit (one-to-one) basis.

Organizations that Have This Capability   *Comments (if any)*

AGILE	*Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.*
ARJIS	*Part of the RCS capabilities*
BORTAC	*Agencies need to coordinate the setup of communications and once the setup is established, then the users can communicate transparently.*
Coast Guard Rescue 21	*Rescue 21 will provide unit-to-group (broadcast method) and unit-to-unit (talk group) communications capability.*
ComCARE Alliance	*Using standards-based data networks and a geospatial directory service to permit instant notifications to agencies based on geographic responsibility / interest and other criteria.*
COPS	*Support the development of standards by validating proposed specifications through laboratory testing. Support the interoperability testing of standardized products by acquiring test suites of Project 25 radio equipment.*
IWN	*IWN incorporates P.25 trunking features such as unit-to-group (one-to-many) basis and a unit-to-unit (one-to-one) communications.*
JTRS JPO	*Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability. A software version of the APCO Project 25 waveform will also support this capability for non-DoD users.*
NCS	*Wireless Priority Service is based upon a priority queuing scheme that allows key users access to a radio channel during congested times within publicly maintained/operated wireless networks, e.g., cellular infrastructure.*
NCSBCS	
NLECTC -- Southeast	*The capability in the SAAC system allows both unit-to-group and unit-to-unit communications. In addition, this capability is provided over a large frequency space ranging from 20 MHz to 1.2 GHz*
NRL / InfraLynx	*The NRL InfraLynx provides a host of off-the-shelf integrated communications gear. The "one-to-many" and "unit-to-unit" communications is handled via the ACU-1000 and/or the TAC-CELL cellular switch and/or a satellite data modem and/or wireless voice /data/video (802.11a/b)*
OLES	*On behalf of the NIJ AGILE Program and COPS, standards development in Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum; and acquisition, test and evaluation of Project 25 equipment and interoperability devices.*
Project 25	*Project 25 networks are designed to accommodate unit-to-unit or unit-to-group communications based on either preplanned inter-communications plans or on dynamic requirements. Pre-definition of talk-groups and inter-relationships is a critical component in the implementation of any advanced telecommunications system, since most of these transactions are handled automatically.*

Project MESA

The SoR for Project MESA specifically requires, and anticipates, the creation of "user grouping" and point-to-point transmission of specific data. It is critical to understand, however, that these transmissions within the MESA network embody voice and many other forms of data applications and services, some of which may not be currently available in the marketplace. Project MESA specifications will be limited to the transport specifications and eventual standards and are not intended to define service applications and protocols.

PSWN Program

This capability is addressed as a component of Voice Communications-- Functional Area #6 that reads "Ability for users to transparently communicate, as authorized, among multiple agencies/jurisdictions some of which may use different technologies, infrastructures and/or frequency bands."

 # 3 Ability of the agency/jurisdiction to administer the priority for voice communications of particular users and particular applications (such as task force operations, incidents, etc.).

Organizations that Have This Capability   Comments (if any)

AGILE	Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.
ARJIS	Part of the RCS capabilities
COPS	In conjunction with Project MESA, standardization related to quality of service (QOS) and priority access parameters.
IWN	IWN incorporates priority queuing and 'ruthless preemption' for voice communications based on user requirements.
JTRS JPO	Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability for DoD only using the new Wideband Networking Waveform (WNW).
NCS	This is a key requirement. The ability to adjudicate the level of priority assigned to any user/user groups must be centrally coordinated.
NCSBCS	
NLECTC -- Southeast	The SAAC Team is working towards integrating the P 25 trunking standard, which supports the administration of priority access.
NRL / InfraLynx	The InfraLynx system can coordinate priority voice and data communications via an existing off-the-shelf suite of radios tailored for the incident. The InfraLynx can also pass the GETS card information. In the future, the development of a Software Definable Radio (SDR) will be able to seamlessly accomplish the task. The NRL has developed an SDR "Pathfinder" and demonstrated this capability in conjunction with the InfraLynx in 2002 at O'Hare International Airport in Chicago. Additionally, the Satellite and cellular systems can also be prioritized based on task force operations guidance.
OLES	On behalf of the NIJ AGILE Program and COPS, standards development in Project 25, and Project MESA
Project 25	The ability to prioritize access and communications within a Project 25 standardized system is based on a user-defined hierarchical structure. Priority on a daily basis is given to those applications, services,and users who have the highest level of access within the predefined levels of access authorization. While priority access is normally predefined, it can be redefined by the user's agency as the need exists. Initial system plans, as well as long-term operational procedures and inter-local agreements, must reflect how these data bases will be changed, by whom, when, and with whose authorization. It is important to note that good engineering practices will help design these advanced systems with enough capacity so that actual use of priority is reserved for extraordinary circumstances, and virtually all users normally obtain immediate access to the system.

Project MESA

The Project MESA SoR anticipates the need for multiple levels of priority access, bandwidth on demand and a self-healing network. However, since voice communications is an ancillary activity that will generally be directly related to or imbedded in another form of data transport services, it is important to not assume any higher priority will be given to this function than to many of the other functions, unless it has been so defined by the users in the operational data base. It would normally be expected that LMR public safety dispatch-type service would be conducted on an LMR-type network to avoid collisions between voice and other data transmissions.

SNSP

We use the Wireless Priority Service along with the Government Emergency Telecommunications System. All services are provided by the NCS.

Question Summary with Comments

 # 4   Ability to communicate an emergency voice message and/or signal which has priority over other voice communications.

Organizations that Have This Capability   Comments (if any)

AGILE	*Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.*
ARJIS	*Part of the RCS capabilities*
Coast Guard Rescue 21	*Digital Selective Calling (DSC) automatically switches to a voice channel once the initial distress message has been received and acknowledged.*
IWN	*Priority emergency alarm/call function and alarm is provided.*
JTRS JPO	*Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability for DoD only using the new Wideband Networking Waveform (WNW).*
NCS	*Priority over other users within the community, also.*
NLECTC -- Southeast	*The SAAC Team is working towards integrating the P 25 trunking standard, which supports emergency signaling.*
NRL / InfraLynx	*The InfraLynx system provides existing radio types to facilitate emergency broadcast. In addition, the InfraLynx can be programmed to use satellite and cellular system for a priority voice.*
OLES	*On behalf of the NIJ AGILE Program, standards development in Project 25, and Project MESA especially in areas related to quality of service and priority access parameters.*
Project 25	*Project 25 Statement of Requirements (SoR) and standards were created with the full recognition that priority access was an integral part of the user's specialized requirements. While the concept of ruthless preemption in a digital network is an integral part of the P25 SoR, reality dictates that what is actually taking place is a rapid reallocation of the very first spectrum resource to the requesting unit. An actual effort to override an existing transmission with a new one, no matter how important, would probably mean the demise of both messages.*
Project MESA	*The Project MESA SoR includes the requirement that all services and users should be capable of being prioritized in accordance with a predefined structure or on a dynamic basis, as may be required to adequately respond to a specific incident.*
PSWN Program	*The PSWN Program is collaborating with the National Communications System (NCS) to test the applicability of Wireless Priority Service (WPS) in emergency public safety land mobile radio (LMR) environments. Public safety responders will benefit by understanding how they can integrate priority wireless voice via WPS with standard LMR, what challenges and options exist for deployment (e.g., interference issues and technical application scenarios), and how to incorporate support for such services into current operations.*

Question Summary with Comments

 # 5   Ability to have secure voice communications.

Organizations that Have This Capability   Comments (if any)

AGILE

Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.

ARJIS

Part of the RCS capabilities

Coast Guard Rescue 21

The new Rescue 21 system will provide 'protected' communications capability (i.e., DES, DES-OFB, AES) at each remote fixed facility within each of the Coast Guard's 46 regions.

IWN

End-to-end AES encryption is provided.

JTRS JPO

Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability. The JTRS SCA supports communications security and programmable cryptographic capabilities up through Type 1 Security for DoD requirements.

NCS

For certain users yes. NSA-approved secure sleeves in use.

NCSBCS

NLECTC -- Southeast

The SAAC system will incorporate the P 25 standard and will support the security called out in the P 25 specification.

NRL / InfraLynx

The InfraLynx system provides off-the-shelf radio types that facilitate secure voice communications. In addition, InfraLynx utilizes the secure type 3 encryption for cell phones via Verizon.

OLES

On behalf of the AGILE Program, standardization through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.

Project 25

The Project 25 standards were designed to allow for the use of the Federal government's Type 1, Type 2, and Type 3 encryption algorithms, and also proprietary algorithms. The use of several approved Type 3 encryption algorithms, including DES, Triple-DES,and the AES, are fully specified in Project 25 standards. Type 1 encryption is defined in classified government documents. Users may also choose to use a company's proprietary encryption algorithm with full knowledge of the complications that such a choice may introduce into interoperability.

Project MESA

Even though the Project MESA specifications and eventual standards are not intended to replace traditional public safety LMR services and the specifications and standards have not been written, the SoR clearly articulates the requirements for multiple levels of encryption, which include, but are not limited to, the primary Project 25 standards encryption methods. Those specifications are being created to allow for the use of the U.S. Federal government's Type 1, Type 2, and Type 3 encryption algorithms, and also proprietary algorithms. The use of several approved Type 3 encryption algorithms, including DES, Triple-DES and the AES are fully specified in Project 25 / TIA-102 standards. Type 1 encryption is defined in classified government documents. Users may also choose to use a company's proprietary encryption algorithm with the full knowledge of the complications that such a choice may introduce into interoperability.

We expect other international and national standards will be added to ensure each nation or group of nations choosing to adopt the Project MESA specifications and eventual standards will have the capability to control their own security and protection issues. As a matter of form, it is fully anticipated that end-to-end encryption may be necessary to protect both public records and emergency responder transmissions. Since the information will be in a wireless format, the requirements for full encryption may be even greater than now recognized.

PSWN Program

The PSWN Program has extensive experience in addressing secure voice communications, including assessing the security of voice networks, implementing security measures in those same systems, and ensuring system security features are adequately addressed by standards-setting bodies. The program has also developed an LMR risk assessment methodology, as well as security planning and policy templates that can be applied to any LMR system. These templates are serving as "de facto" standards for security planning and are key elements in system buildouts at the Departments of Justice and Treasury and in states such as Michigan.

SNSP

We use both the STU-III and STE phones. We have the capacity to bring them on deployment if necessary.

Question Summary with Comments

 # 6 Ability for users to transparently communicate, as authorized, among multiple agencies/jurisdictions some of which may use different technologies, infrastructures and/or frequency bands.

Organizations that Have This Capability   *Comments (if any)*

AGILE	*Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), test and evaluation of standard products to determine the degree of interoperability among them, and test and evaluation of commercially available and emerging interoperability devices.*
ARJIS	*Part of the BORTAC System capabilities*
BORTAC	*The system allows users from all bands, trunked and non-trunked, to interoperate once the communications are enabled. The normal situation is for the agencies to be separate until they decide to join communication link.*
Coast Guard Rescue 21	*Rescue 21 will provide the capability to communicate in the 162-174 MHz and 406-420 MHz bands. In addition, Rescue 21 will provide console-to-console patching capability to link diverse communications systems.*
ComCARE Alliance	*Using standards-based data networks and a geospatial directory service to permit instant notifications to agencies based on geographic responsibility / interest and other criteria.*
COPS	*Support the development of standards by validating proposed specifications through laboratory testing. Support the testing of interoperability products by acquiring test suites of equipment.*
IWN	*Interoperations solutions that allow transparent communications are included in the IWN design. Solutions allow 'connection' of disparate systems through a variety of mechanisms (gateways, cross-banding, etc.).*
JTRS JPO	*Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability. The SCA supports portable waveforms. Therefore one radio can use many different waveforms allowing it to interoperate with many different disparate communications systems.*
NCS	*Interoperability among technical systems as well as operational/procedural ones.*
NCSBCS	
NLECTC -- Southeast	*The crossbanding capability in the SAAC system has demonstrated the ability for multiple agencies to communicate over different frequencies.*
NRL / InfraLynx	*The InfraLynx achieves this interoperability among disparate users by providing each radio type as well as utilizing the ACU 1000. In addition, the internet is also used a point of presence for all agencies to log on to. In the future, the SDR will be programmed to facilitate interagency communications.*

ODP

The Office for Domestic Preparedness (ODP) is providing training and technical assistance to enhance interoperable communications in state and local agencies.   Although this effort is ramping up, it will be available soon to a limited number of local jurisdictions and selected state agencies, particularly large cities funded through the ODP Urban Area Security Initiative (UASI). State agencies also will be eligible for this assistance. State and local agencies, with ODP assistance will be able to conduct requirements analyses and assessments, develop engineering recommendations to improve communications interoperability, and learn how to utilize work around technologies; i.e., cross-band switching devices, in the solution process.
This builds on the work ODP has already accomplished under a FY 1999 interoperable communications demonstration project. The demo project placed 52 ACU/TRP-1000 cross switches in 22 jurisdictions which also included on-site training, evaluation, and the development of an ACU/TRP-1000 users guide for jurisdictional use. Several of the jurisdictions that had received these devices are also UASI cities and will be slated for additional assistance in interoperable communications.

OLES

On behalf of the NIJ AGILE Program and COPS, standards development in Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum; and acquisition, test and evaluation of Project 25 equipment and commercially available and emerging interoperability devices.

Project 25

Interoperability between multiple agencies can occur on a number of levels within a Project 25 trunked or conventional network. The first level is through planned access based on inter-local agreements and preprogrammed authorization. It can also occur on a special-needs basis, given certain preplanned conditions are met.

While Project 25 standards are designed to ensure interoperability between standardized technologies, there are also provisions for inter-operability between non-standard analog systems as well as backward compatibility to a company's proprietary, analog trunked system on a manufacturer-by-manufacturer basis.

Even though the same Project 25 standards can be applied in each of the current FCC public safety spectrum allocations bands, there is nothing inherent in the SoR or any of the standards to date that ensures interoperability between bands. That level of service would normally be handled by advanced planning and one of many limited, but very functional, gateway options.

Project MESA

The core of the proposed Project MESA specifications and standards is to create a dynamic network that can focus on the transport of bandwidth intensive wireless data services and applications. While transparent access by an authorized MESA user may be allowed based on predefined or dynamically authorized tables, they would not normally be set up for simple voice transaction that could take place on a public safety LMR network or other private or public medium.

Access to different technology platforms and multiple interfaces would depend on the specificity of the final specifications and eventual standards. Nothing in the proposed specifications or standards is intended to imply the Project MESA platform would be spectrum agile and able to intercommunicate with other technology platforms across a wide range of spectrum allocations or bands.

PSWN Program

Actively addressing interoperability -- the ability for public safety responders to talk to each other by radio seamlessly and in real time -- is central to the PSWN Program mission. The program actively works with local, state, Federal, and tribal public safety agencies to improve spectrum availability, funding, technology and standards, security, and agency coordination. The program has compiled its knowledge gained through implementation activities into a national strategy for improving interoperability, known as Public Safety WINS: Wireless Interoperability National Strategy. The strategy provides a comprehensive multimedia tool and interactive Web site (http://www.publicsafetywins.gov) that helps users identify technical and policy solutions for addressing their specific interoperability needs. Other program activities include providing direct implementation assistance to public safety agencies, conducting operational pilot deployment to address specific state and local needs, and disseminating critical high-profile guides on issues and solution approaches.

Question Summary with Comments

 # 7 Ability to remotely access a user's agency/jurisdiction voice communications infrastructure when the user roams outside the radio coverage area of the user's agency/jurisdiction wireless infrastructure.

Organizations that Have This Capability   Comments (if any)

AGILE	*Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), test and evaluation of standard products to determine the degree of interoperability among them, and test and evaluation of commercially available and emerging interoperability devices.*
Coast Guard Rescue 21	*Rescue 21 provides the capability for mobile units to communicate with their home-base when operating outside of their normal radio coverage area through other regional remote fixed facilities via the Coast Guard Data Network.*
COPS	*Support the development of standards by validating proposed specifications through laboratory testing. Support the testing of interoperability products by acquiring test suites of equipment.*
IWN	*IWN is a nation-wide trunked radio system that allows nation-wide roaming (as required).*
NCS	
NCSBCS	
NRL / InfraLynx	*The InfraLynx provides a complete communications extension. Once on scene, the user can access all existing radios, internet, cell and satellite services to restore local communications and provide a reach back capability.*
OLES	*On behalf of NIJ's AGILE Program and COPS, development of specifications for Standards in Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), test and evaluation of prospective standardized approaches (before they are offered to standards committees), acquisition and test and evaluation of standard products to determine the degree of interoperability among them, and test and evaluation of commercially available and emerging interoperability devices.*
Project 25	*Because the Project 25 standards anticipate both roamers from other systems and their units roaming outside of their system, several layers of remote access have been or are in the process of being established. Access to a P25 network by roamers coming into an established network can either be obtained by predefined cooperative agreements, use of pre-planned common calling channels, or through the dual mode (analog - digital) attributes of the technology. Adjacent P25 systems with proper authorization and authentication pre-established in cooperative agreements should be able to inter-communicate through the P25 Inter-Service System Interface (ISSI) once that standard is finalized.*
	P25 agency subscriber units roaming outside of their network may roam into other standardized networks and obtain the same level of service described above. Once again, non-standardized technology may obtain access through pre-established cooperative arrangements and analog or digital common calling channels, cross-band repeaters, or other types of manual or automated distribution devices. While technology is extremely important in achieving interoperability, success cannot be achieved without comprehensive advance planning and long-term data base and system management.

Project MESA

The SoR does not anticipate roaming functions as might be expected in a traditional public safety LMR, cellular or personal communications service. In fact, it is anticipated the eventual network specification and eventual standards will be very structured and closely controlled to ensure maximum benefit to the emergency responders, a minimum of threats to security and maximum use of the original investment by making certain that the public safety agencies who cooperated to build the network have access to it when and if they need it. Transient users will be authorized high-speed transport access on an as-needed basis to respond to a specific emergency. Inter-agency voice communications would not normally be considered one of the primary services that a transient unit may require. The users' Project MESA network implementation plan would include "gateways" to other transport services to accommodate users who were outside the network but need to transmit or receive data from the network. The details, issues, and problems associated with those "gateways" have not yet been addressed.

PSWN Program

The PSWN Program has conducted studies and piloted solutions in several geographically diverse regions across the Nation. The solutions have proven to provide best practices that enhance radio coverage and interoperability among multiple public safety agencies from differing agencies and jurisdictions.

Question Summary with Comments   Wireless Voice

 # 8   Ability to effectively initiate and sustain flexible and dynamic system administration (includes administration of talk groups, emergency alerts, networks, and channels for mutual aid).

Organizations that Have This Capability   Comments (if any)

AGILE

Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.

ARJIS

Part of the RCS capabilities

Coast Guard Rescue 21

Rescue 21 provides this capability to each of its 46 regional Group Communication Centers (GCCs).

IWN

IWN architecture includes centralized system management and administration.

JTRS JPO

Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability for DoD using the new Wideband Networking Waveform (WNW). To a lesser extent this capability can be provided to civilian 1st responders using the APCO Project 25 waveform.

NCSBCS

NRL / InfraLynx

The InfraLynx system provides the ACU 1000 for radio programming. The resident TAC-CELL can be programmed for talk groups, emergency alerts and mutual aid. The satellite system can be programmed by the system administrator in a primary or back mode. InfraLynx uses a series of advanced network monitoring tools for wireless and wired communications..

OLES

On behalf of NIJ's AGILE Program, standardization through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.

Project 25

The Project 25 standards are based on the use of SNMP and are specifically set to ensure each user has the opportunity to create and develop their own system management tools within the limitations of the basic application platform. Wireless system management is usually performed on the same platform, using predefined software provided by the equipment supplier.

Project MESA

The proposed Project MESA specifications may include the need for a large, contiguous piece of spectrum bandwidth, which would be allocated on demand. While the networks that will be derived from the Project MESA specifications will be very flexible and dynamic and have "user groupings" as may be required, it would not normally be used for emergency alerting or traditional mutual aid channels. Mutual aid communications on a Project MESA network may take many non-traditional forms, such as dissemination of video, complex graphical information, and other date intensive files that are related to a specific incident or project.

PSWN Program

The PSWN Program has assessed dynamic system administration techniques to improve on-scene interoperability. The program has examined the issue from a number of perspectives ranging from the development of an operational best practices report, a "How-To" guide, and various project "after-action" reports (e.g., Capitol Wireless Integrated Network [CapWIN] and Project MESA). The program has been able to educate public safety agencies and their system administrators on ways to improve interoperability through more efficient system management.

Question Summary with Comments

 # 9   Ability to sustain highly reliable system performance across interconnected systems (including tolerance to individual system failures, redundant coverage from adjacent sites, resistance to impact of catastrophic events, etc).

Organizations that Have This Capability   Comments (if any)

AGILE
Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.

ARJIS
Part of the RCS and BORTAC System capabilities

Coast Guard Rescue 21
Rescue 21 provides guaranteed minimum 99.5% system reliability.

ComCARE Alliance
Using Internet protocols and Web services architecture (including security architecture) for reliable, scaleable, and interoperable voice and data communications.

COPS
Wireless research and standardization of performance in adverse environments in conjunction with Project MESA, etc.

IWN
System reliability is provided in the form of fault tolerant or redundant system components and development of robust sites. Redundant coverage is not typically a design criterion due to expense.

NCSBCS

NLECTC -- Southeast
The design of the SAAC system uses multiple cards and only relies on the laptop for system configuration; the cards provide greater flexibility and redundancy in case of a single card or laptop failure.

NRL / InfraLynx
The InfraLynx system provides a highly reliable redundant multifaceted communication suite comprised of multiple radios, satellite system and cellular switch and WIFI. In the event of a catastrophe, these systems can be used individually or as group (scaleable, depending on mission parameters).

OLES
On behalf of NIJ's AGILE Program and COPS, wireless research and standardization of performance in adverse environments in conjunction with Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum. Also, test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.

Project 25
System reliability, while an integral part of the Project 25 standards process, is in the end more of a function of the system design and implementation of that technology than the technology itself. P25 technology is capable of operating in a conventional mode, trunked mode, simulcast mode or multi-cast mode, depending on the size and scope of the system and its requirements for coverage and services. Trunked standards include the capability for gradual (graceful) degradation. Interoperability between systems will be maintained by the ISSI now under consideration. While yet to be created, the P25 SoR also requires compliant standards for mobile (vehicular) repeaters, which adds another dimension of redundancy. Given massive or catastrophic system failure, the P25 systems standardized to date have the capability of car-to-car, portable-to-portable, or portable-to-car direct mode communications, which also provides another level of communications redundancy for the end users. While all of these attributes are critical to a well-defined network, without comprehensive advanced planning and ongoing system maintenance and operational management, they can expect to perform at something less than the optimal level.

Project MESA

Since Project MESA is based on a non-traditional set of criteria, redundancy requirements are limited by the scope of the design and requirements of the end user and by how much of the network is terrestrial or extra-terrestrial and how much of it will be fixed sites versus temporary sites. More importantly, the complexity of ensuring a stable environment requires a far more complex design and implementation strategy, and operational procedures. Linkage outside the defined network would only occur on a preplanned or predefined basis unless an interface to some other network was included in the installed base. In any event, it will be highly reliable and highly redundant and serve a multitude of emergency and some traditional high-speed data services.

PSWN Program

The PSWN Program, in collaboration with the NCS, is participating in a reliability assessment for a state public safety 800MHz LMR network. The effort will evaluate the interdependencies between the state system and the Public Switched Telephone Network (PSTN), identify potential points of failure across infrastructures, and provide relevant mitigation strategies. The objective is to provide the state agency with valuable information that can be used to improve the reliability and redundancy of its public safety system infrastructure.

Question Summary with Comments

 # 10 Ability to remotely (over-the-air) reprogram a user's radios and/or modify a user's encryption keys and/or modify a radio's waveforms.

Organizations that Have This Capability   Comments (if any)

AGILE

Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.

Coast Guard Rescue 21

Rescue 21 provides over-the-air reprogramming and over-the-air-rekeying (OTAR) capability for each of its 46 regional Group Communication Centers (GCC).

IWN

IWN includes both OTAR and OTAP.

JTRS JPO

Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability. JTRS is specifically designed to provide capability for over the air (OTA) rekeying and OTA reprogramming to include changing waveforms.

NCSBCS

Maybe.

NLECTC -- Southeast

The SAAC Team is working towards integrating the P 25 trunking standard, which supports OTAR.

NRL / InfraLynx

The InfraLynx provides off-the-shelf commercial communications equipment and thus could employ those components that would enable over-the-air rekey, modification of encryptions keys and modification of radio waveforms.

OLES

On behalf of NIJ's AGILE Program, efforts associated with standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.

Project 25

Most digital technologies in the marketplace today have the ability to perform predefined levels of what is referred to here as remote rekeying. Project 25 radios are no different. However, before any over-the-air rekeying or re-programming can take place, the end users must be able to define which functions they believe should be accessed over the air, by what authority, and by whom, a problem that is far more complex than it may appear.

Over-the-air rekeying of Project 25 encrypted services is a standard option and is currently undergoing the final standardization and consensus process review. Even though Project 25 radios are capable of a limited "wave-form" conversing with their dual-mode (analog – digital) capability, it is within a well-defined standardized radio. There has not been at this point a P25 attempt or initiative to create a totally dynamic and programmable P25 multi-mode, multi-band product. Such issues as access-defined user access, authentication, operational and service security, antenna compatibilities and system control and management, to name a few, would need to be addressed early on to ensure the proposed multi-mode, multi-band tool would truly benefit and not hinder the users.

Project MESA

The use of Over-The-Air-Re-Keying (OTAR) and over-the-air subscriber unit updates will no doubt be possible; however, as of this point in the process, no specific applications, features, or functions have been identified.

PSWN Program

The PSWN Program developed analyses and educational materials on two emerging software applications to improve interoperability:

- Securing voice radio transmissions (i.e., over-the-air encryption key management, or over-the-air rekeying [OTAR])

- Manipulating radio frequency transmissions at the waveform level (i.e., software enabled radios [SER]).

The educational materials resulting from these analyses help system planners more effectively implement cost-efficient solutions and plan for longer term interoperable system enhancements.

 # 11   Ability to provide state-wide (county-wide) signal coverage to vehicular/mobile radios on highways and at street level for state (county) agencies, to provide city-wide signal coverage to portable/handheld radios on the street and within buildings for city agencies, and to provide direct communications between user radios when there is no wireless infrastructure to support communications (such in some rural areas, underground parking garages, and inside some buildings).

Organizations that Have This Capability   *Comments (if any)*

Organization	Comment
AGILE	*Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), test and evaluation of standard products to determine the degree of interoperability among them, and test and evaluation of commercially available and emerging interoperability devices.*
Coast Guard Rescue 21	*Rescue 21 is a maritime system and will provide communication coverage out to 20 nm from the territorial sea baseline, the Intracoastal Waterway, navigable harbors, bays, rivers and lakes. Specific coverage areas are defined in the Rescue 21 performance specification.*
COPS	*Research, analysis, and development efforts related to the propagation of Wireless Communications Signals through Building Structures, Urban Environments, and debris, considering existing and emerging wireless technologies. In addition, evaluation of alternatives for communicating in the same environments, e.g., using fixed and mobile intra-building repeaters.*
DoT ITS Program	*System coverage includes locations within transportation structures (e.g., under bridges, within tunnels).*
IWN	*IWN, a high-level design criterion, includes: handheld street-level coverage in urban areas, mobile coverage 5 miles on either side of major highways and interstates, portable coverage 5 miles from U.S. land borders, tribal lands, and in-building coverage as required (airports, ports-of-entry, U.S. courthouses, etc.). Actual coverage for IWN 'areas' is based on coverage requirements for that specific area.*
NCS	*No significant work here other than supporting growth and build-out of existing infrastructure and support to spectrum allocation issues.*
NCSBCS	
NLECTC -- Southeast	*The SAAC system is deployable in a mobile configuration or can be collocated at a fixed tower location and can support requirements for multiple power levels.*
NPSTC	*The Missouri State Highway Patrol operates a low VHF band (42 MHz) statewide radio system that has complete coverage over the entire state of Missouri from 15 sites. We anticipate eventually moving to a higher band and using some of the trunking functionality that is mentioned above, but the time frame for that transition is undecided.*
NRL / InfraLynx	*The InfraLynx provides a self contained, complete complement of communications gear including radios corresponding to jurisdictional requirements. In addition, the ACU 1000 enables the crossbanding between radios. Once a signal reaches the InfraLynx, it can be routed via radio, cellular, WIFI and/or satcom. In circumstances where there is no infrastructure, InfraLynx can provide the bridge to the outside world. InfraLynx is the contingency.*

OLES

On behalf of NIJ's AGILE Program and COPS, research, analysis and development efforts related to the propagation of wireless communications signals in urban environments, and evaluation of system alternatives. Also, related standards development efforts (including laboratory evaluation work) associated with Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum). And test and evaluation of commercially available and emerging interoperability devices.

Project 25

Since the P25 standards can be scaled from the very smallest to the very largest system, they can easily be implemented on an area, city, county, state, or national basis. With technology that can operate in the trunked or conventional mode, the use of mobile repeaters (vehicular repeaters), portable repeaters, bi-directional amplifiers/antennas (Bas) and direct mode is inherent in the standards. All standardized portables and mobiles are capable of direct mode communications. A user has the flexibility of having a mixed trunked and conventional system that is deployed based on users needs, population of users, and tasks to be performed. However, once again, it is critical that the users predefine their needs and incorporate them in a comprehensive plan and system design. Finally, the users will need to manage and modify the system over the long term to ensure it meets its maximum potential.

While direct mode (portable-to-portable or mobile-to-mobile) communications is a primary function of a P25 standardized system, the ability to communicate in diverse specialized environments, such as mine shafts and parking garages, is more of a function of the system's design and the defined tactical response for each specialized emergency.

Project MESA

The requirements outlined in this question are generally more applicable to LMR service. However, given the importance of data and, in the case of Project MESA, high-speed data, it is important to at least provide a general comparison of how those requirements fit with the requirements of the Project MESA SoR. The core of the Project MESA SoR is based on the anticipation that the specifications and eventual standards would, in fact, be capable of providing wide-area coverage, in-building coverage, coverage from moving vehicles and coverage on a city-wide, county-wide and, in some cases, statewide basis. The issue of Project MESA coverage will be founded more on public policy and cost-related issues than on technology. Given the complexity of the technology, it is anticipated that primary or fixed service will be created in major urban areas while secondary, occasional service will be established on an as-needed basis at local hot spots. Since the actual system and service costs are unknown at this phase, much of the actual data relating to implementation will need to wait until a future date.

PSWN Program

The PSWN Program has provided support to improve signal coverage both in metropolitan (e.g., Washington, DC) and rural areas (e.g., Washington state), and in uniquely challenging geographic areas (e.g., subway system tunnels and rugged coastal terrain). The program has also addressed the ability of laws, regulations, and ordinances to affect the development of in-building wireless systems in urban areas.

Question Summary with Comments

 # 12 Ability to initiate wireless data communications by requiring the user to only enter (on his/her data terminal/radio) a user identification which authenticates and validates the user, registers and sets data resource capabilities for the user, and completes all radio network administration for the user's data communications with other members of the user's agency/jurisdiction and with other agencies/jurisdictions, as authorized.

Organizations that Have This Capability   *Comments (if any)*

AGILE

Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.

CapWIN

Authorization/authentication is handled by a combination of LDAP/RDBMS and VPN software which allows secure data communications and access to authorized resources only.

Coast Guard Rescue 21

Digital Selective Calling (DSC) provides this capability.

COPS

Support the development of standards by validating proposed specifications through laboratory testing. Support the interoperability testing of standardized products by acquiring test suites of Project 25 radio equipment.

DoT ITS Program

IEEE 802

The IEEE 802.16 Working Group has developed IEEE Standard 802.16 ("Air Interface for Fixed Broadband Wireless Access Systems"), otherwise known as the WirelessMAN™ air interface for wireless metropolitan area networks. The group is currently developing the 802.16e enhancement for support of mobile terminals. The standard does not specify an entire systems, but the capabilities mentioned here would be readily supportable by the WirelessMAN air interface.

IEEE 802.16 has been developed with hundreds of experts from around the world. Companies are currently developing implementations. Compliant products are expected in 2004. The primary applications are commercial and consumer, but features of the standard make it also appropriate for use in public safety.

IWN

The Integrated Wireless Network (IWN) is based on VHF, P.25, trunked architecture with VoIP connectivity. User devices (subscribers) are P.25 compliant radios with user identification capabilities (radio ID) associated with each radio. Each radio will be programmed to support the user's needs to include: talk groups, functionality, OTAR, OTAP, and encryption algorithms. At this time, the system will not incorporate the use of downloading user profiles from the network based on a user entered ID or password. Data in the form of OTAR, text messaging, access to specific data applications (NCIC, etc.) is provided. High-speed data applications services are typically provided by commercial services.

NASA's Earth Alert Program	*Based on feedback from emergency management organizations and AEPTEC research we have determined that further expansion of the use of consumer wireless networks and devices was needed. Many governments utilize Nextel wireless devices and capabilities. Nextel i88 phones have the capabilities to provide wireless voice, data service, and GPS capabilities needed for providing location information. Since many government agencies do not have the capabilities or funding to build all the necessary components of a wireless data solution AEPTEC will offer the solution as a subscription service or as a direct sale to accommodate small or large prospects.* *AEPTEC will utilize the GPS capabilities in the Nextel I88 phone. The Nextel service is also a preferred service of contractors and other commercial support mechanisms put in place during times of crisis. The solution will most likely include but not be limited to enhancing access through the web to damage assessment information, disaster mitigation and assessment on the Nextel i88 phone, it will also include further features such as directions to critical incidents, support capabilities and shelter availability (hotels, government buildings). A weather feed will enable requests for location specific updates to a Nextel phone and to enable emergency management personnel to stay up to date on weather progression. The solution will also enable command center personnel web tracking screen access.* *Some of the wireless data service providers supported:* *- Nextel Packet Data* *- CDPD with EarthLink* *- Aeris Microburst* *- SMS Messaging* *- Verizon* *- Sprint* *- Cingular* *- Satelite*
NCS	*Wireless Priority Service (WPS) gives authorized users priority access on commercial wireless networks.*
NCSBCS	
NIST	*Using ad-hoc wireless networks to establish voice and data communications on-scene*
NLECTC -- Southeast	*The SAAC Team is working towards integrating the P 25 trunking standard, which supports wireless data.*
NLETS	*NLETS is offering this item by using multiple vendor partners who offer this service via the NLETS Frame Relay Network.*
NPSTC	*The Missouri State Highway Patrol uses commercial Cellular Digital Packet Data throughout most of the state.*
NRL / InfraLynx	*The InfraLynx system uses the Windows 2000 authentication server as well as, WEP, AES encryption and MAC address for authentication and validation.*
OLES	*On behalf of the NIJ AGILE Program and COPS, standards development in Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum; and acquisition, test and evaluation of Project 25 equipment and interoperability devices.*
Oregon RAINS	*RAINS-NET client capabilities require only the existence of an IP signal in order to send and receive information. The USER-ID and password authenticates and binds the user to the local system, then transmits his/her credentials via the IP network to the SWARM server, which then provides specific and targeted information to the authorized user, based on Job Function, Location, Authorization Level, etc.*

Project 25

P25 standardized technology is designed to accommodate both voice and data, even though most of the emphasis to date has been on voice services. A conscious decision was made early on in the process that ensures both the users and the creators of the standards clearly understood that data services would be limited by both the limited allocation of spectrum where technology would operate and the concern of the users that emergency voice traffic would not compete with vital data traffic. As a result of that decision, the Project 25 Steering Committee created a separate Statement of Requirements for broadband data, which became known as Project 34. Project 34 eventually evolved into a broadband data specification process, now known as Project MESA.

While the standards are not written to be a primary data transport, the technology can accommodate data. Wireless network access and authentication takes place automatically. The information that is collected by the end users is individually defined, but each transaction carries a detailed identification tag. Network management and operations is normally done with SNMP and with the end users defining their requirements for operational management systems and the network or system provider defining the network management applications. The end users then define their own operational criterion with regard to talk groups, priority of access, and other system attributes. (Note Project 25 Wireless Radio Systems on prior pages.)

Project 25, Phase 1 standards exist to support both packet and circuit switched data but only at the data rate of the Common Air Interface, 9.6 kbps. Phase 2 standards will accommodate higher data rates, but, as discussed previously, wideband data carriage is the subject of Project 24 and Project MESA. All of these are efforts to standardize these technologies. It is apparent that technologies that have been discussed for wideband applications can also be applied to narrow channels, and data rates in the area of 96 kbps in a 25 kHz wide channel are seen as not being too far off.

Project MESA

Project MESA is a cooperative effort between the public safety communities in North America and Europe, the Telecommunications Industry Association (TIA), and the European Telecommunications Standards Institute (ETSI) to create wireless, broadband, technology specifications and eventual standards that can be used for the transmission of complex data, including voice, video, complex images, and other public safety and first responder files. Please see the Project MESA Statement of Requirements, Requirements Matrix, and Project MESA scenarios on the Project MESA web site at www.projectmesa.org. The Project MESA SoR is based on the concept of providing automatic network access to all authorized subscriber units. Access codes and user identifications are preprogrammed into each unit. Encrypted units would require additional data verification throughout their transmission. Conceptually, the proposed Project MESA technology would initiate the data transaction, verify authentication, and connect all predefined units in the specified user group. Error detection and barriers to unauthorized intrusion would normally be expected. Authorized users would be predefined and established in both the network and authorization tables. The limited number of roaming users that could be expected to join the network would need to establish authority and obtain both an electronic and formal system manager authorization to join the network.

 # 13   Ability of users to quickly and transparently establish on-scene wireless data networks that function among data terminals located in on-scene vehicles and among data terminal carried by users into buildings, etc.

Organizations that Have This Capability   *Comments (if any)*

AGILE	*Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.*
CapWIN	*CapWIN does not allow for the creation of "networks" per se but does allow for the coordination of resources and communication using its "incident management" framework.*
Coast Guard Rescue 21	*Rescue 21 provides the capability to rapidly transfer data between Coast Guard mobile and shore units. This will greatly enhance the Coast Guard's capability to prosecute search and rescue (SAR) and law enforcement cases, and to track the location and movement of underway Coast Guard assets*
COPS	*Standardization of wireless approaches satisfying public safety requirements by working within such standards development bodies as Internet Engineering Task Force (IETF) and the Institute of Electrical and Electronics Engineers Standards Committee 802 (IEEE 802).*
IEEE 1512	
IEEE 802	*IEEE Standard 802.16a (an element of IEEE Standard 802.16) specifies an optional mesh topology in which terminals may communicate directly with each other. This topology supplements the basic 802.16 point-to-multipoint architecture, in which terminals communicate with a base station.*
JTRS JPO	*Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability for DoD using the new Wideband Networking Waveform (WNW). The WNW is designed to provide the capability of self-forming, self-healing ad hoc networks on the battlefield.*
NASA's Earth Alert Program	*802.11 FIPS 140 network pending. Already deployed on Navy ships and bases. Working on a mobile deployed system that will have portable sensor kits and video capabilities. Plus an uplink to send data back to a central location.*
NCS	*Next Generation GETS and WPS address this.*
NCSBCS	
NIST	*Using ad-hoc wireless networks to establish voice and data communications on-scene*
NLETS	*NLETS is offering this item by using multiple vendor partners who offer this service via the NLETS Frame Relay Network.*
NRL / InfraLynx	*The InfraLynx functions as a local wireless provider by providing the conduit to reach the first responder in vehicles, buildings, field and in remote locations.*

ODP

The OPD provides funding in the amount of $20 million for CAPWIN, the Capitol Area Wireless Integration Network, a project designed to demonstrate, test, and evaluate a web based information tool, used by patrol officers, hazardous materials transporters, and emergency management officials. CAPWIN users are able to obtain real-time information on suspect individuals, hazardous cargo, and terrorist activities involving weapons of mass destruction. ODP funding for this project provides resources to design and develop the information architecture using non-proprietary software, a systems integration team, State and local agency participants to conduct field tests and evaluations for this capability. The ODP is working in partnership with the National Institute of Justice (NIJ) as co-managers of CAPWIN. It is anticipated that future funding in FY 2004 is forthcoming to continue to build upon the successes of CAPWIN and expand the number of project sites. Although CAPWIN is a data only capability, an additional requirement to establish voice communications capabilities is anticipated.

OLES

On behalf of NIJ's AGILE Program and COPS, standardization of wireless approaches through Internet Engineering Task Force (IETF), the Institute of Electrical and Electronics Engineers Standards Committee 802, Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum; and acquisition, test and evaluation of radio equipment and interoperability devices.

Oregon RAINS

RAINS-NET incorporates SWARM technology, which has been demonstrated in this capacity within the ACTD HLS C2 program and the InfraLynx mobile communications truck. "Scout" clients can quickly link to the local IP infrastructure provided by the mobile communications vehicle and then send/receive relative on-scene information, sharing it with other on-scene participants or transmitting it back to centralized operation centers where it can be authenticated, sanitized, and redistributed.

Project 25

Once again the P25 technology can be used for limited transport of on-scene data within the confines of the originally designed system and the available spectrum resources. Limitations and capabilities with regard to coverage are based more on system design than the actual hardware platform itself.

Project MESA

At the foundation of Project MESA is the concept of being able to quickly establish wireless, high-speed, ad hoc networks that would allow first responders and others full access to any of the technological resources they may have in their automated tool box. Not only does the SoR stipulate the need for these pre-defined automated accesses, but it ensures that the end users will have the bandwidth they need to accomplish the missions, as they are automatically defined, by the end terminal device. Since MESA is a transport service, its total function is to identify authorized users, authenticate their access, identify their routing table, access their routing table, authenticate that access, identify the appropriate interface, connect to that interface, authenticate access approval, validate handshake has taken place, provide error checking and transmit the payload. As the transaction continues, it is expected that MESA will adjust the bandwidth and associated transport needs to meet the needs of its predefined or dynamically adjusted table of priorities and their demands to access the services.

PSWN Program

The PSWN Program has assessed on-scene wireless mobile data networks and their role in improving interoperability. Specifically, the program has assisted with the deployment of a wireless mobile data system (i.e., CapWIN), participated in the development of global standards (i.e., Project MESA), evaluated emerging technologies (e.g., Wireless Firefighter Lifeline [WFL]), and examined wireless data networking standards (e.g., 802.11). As a result, agencies are able to identify and implement appropriate standards and access a collection of data from across several interoperability-focused programs.

 # 14 Ability of on-scene personnel to transparently exchange, as authorized, text, image, and/or video data with other on-site personnel, dispatchers, data resources, etc.

Organizations that Have This Capability   Comments (if any)

AGILE	*Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.*
CapWIN	*Text, image data, and video are all possible and supported by the system. Video is not practical at this time due to limited bandwidth of most end-users.*
Coast Guard Rescue 21	*Rescue 21 will provide VHF and UHF data exchange capability, including text messaging. The data exchange capability can also be used for automatic chart updating, transmission of search planning data, asset tracking, and much more.*
ComCARE Alliance	*Utilizing various public safety and commercial wireless connections to extend the "e-safety network" to individual mobile units.*
COPS	*Standardization of wireless approaches after defining, in conjunction with public safety practitioners and Project MESA, functional/operational requirements in urban settings for voice, data, image, and video.*
DoT ITS Program	
IEEE 1512	*The primary purpose of the IEEE 1512 standards is standardizing the data elements and message sets for use in exchanging real-time information concerning Transportation Incident Management.*
IEEE 802	*The 802.16 WirelessMAN air interface is well suited for this application because of its inherent support for Quality of Service. The design also allows for full support of voice and real-time video telephony.*
JTRS JPO	*Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability for DoD using the new Wideband Networking Waveform (WNW).*
NASA's Earth Alert Program	*802.11 FIPS 140 network pending. Already deployed on Navy ships and bases. Working on a mobile deployed system that will have portable sensor kits and video capabilities. Plus an uplink to send data back to a central location.*
NCS	*Next Generation GETS and WPS address this.*
NCSBCS	
NIST	*A NIST test-bed has been established to research, develop, and evaluate technologies that allow for voice/video/text/sensor data exchange capability. In addition, NIST's BFRL is working not only on organizing and sharing building data, but making it available in a graphical user interface that meets the needs of the first responder. Part of that display would be a floor plan of the building ("static" data). Along with this would be "dynamic" data such as location of fire activity, people, etc. BFRL will use the Virtual Cybernetic Building Testbed (VCBT) to simulate a fire and then format data from the VCBT in a display interface suitable for use by a first responder.*
NLECTC -- Southeast	*SAAC has demonstrated the ability to transfer jpg images over standard voice channels. This will be further enhanced for digital channels.*
NLETS	*NLETS is offering this item by using multiple vendor partners who offer this service via the NLETS Frame Relay Network.*

NRL / InfraLynx	*The InfraLynx provides software collaborative tools such as Net Meeting and CMI services.*
OLES	*On behalf of NIJ's AGILE Program and COPS, and in conjunction with public safety practitioners and Project MESA, standardization of wireless approaches after defining functional/operational requirements in urban settings for voice, data, image and video. Also, standards efforts through Project 25, NPSTC working groups, and the Software Defined Radio Forum), test and evaluation of prospective standardized approaches, and test and evaluation of standard products.*
Oregon RAINS	*Scout clients can capture reports that include audio, video, or still images and deliver/publish the contents to other SWARM participants.*
Project 25	*Since the Project 25 standards are predicated on providing new standardized technologies for narrowband and very narrowband spectrum allocations, its data transport capabilities are restricted by the channel bandwidth. While it is possible to transport text and images, such services must be performed on a noncompetitive basis with critical voice services and in accordance with a well-defined system protocol. Actual coverage will once again be predicated on the user's requirements and the ultimate system design that flows from those requirements. In the long term, it is strongly recommended that voice and data service not be aggregated on narrowband and very narrowband channels except on a limited and defined basis.*
Project MESA	*The Project MESA SoR specifically recognizes the importance of on-scene communications and the transmission of complex images, video, and other network intensive traffic. In fact, the purpose of Project MESA is to create standardized technologies that puts this resource in the hands of the first responders so they can not only communicate with their subordinates, peers, supervisors, supporting agencies, and subject matter experts, they can show an exact vision of what is taking place and what the obstacles are or may be. It is anticipated that the MESA technology will control remote robotics, snuffers, infra-red cameras, robotic bomb disarming devices, and much, much more.*
PSWN Program	*The PSWN Program has analyzed the secure exchange of data transmissions among first responders. Specifically, the program has evaluated new data transmission devices (i.e., handheld devices), investigated emerging data transmission technologies (e.g., Telegeoprocessing), and assessed commercial wireless data services. Through in-field experience, the program has also collected information related to on-scene wireless data exchange. In aggregate, these resources enable public safety officials to make more informed technology decisions.*
SNSP	*We use two-way alphanumeric paging devices.*

 # 15 Ability to protect the privacy of particular information according to applicable laws and statutes so that it can be accessed only by authorized personnel and data terminals.

Organizations that Have This Capability   Comments (if any)

Organization	Comments
AGILE	*Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.*
CapWIN	*The CapWIN system protects all information stored on the system from "end-to-end".*
Coast Guard Rescue 21	*The new Rescue 21 system will provide 'protected' communications capability (i.e., DES, DES-OFB, AES). Access to sensitive information is controlled at each terminal location.*
ComCARE Alliance	*Using public-key infrastructure to implement authentication, non-repudiation, and confidentiality requirements.*
COPS	*Standardization in conjunction with AGILE Program, Project 25/TIA TR 8, Software Defined Radio Forum, NPSTC SDR Working Group, SAFECOM, etc.*
IEEE 1512	*The IEEE 1512 Standards were developed in such a manner that only authorized personnel and/or agencies may be privy to certain data elements and this is a local implementation choice, which needs to be determoined when developing the systems user requirements.*
IEEE 802	*The 802.16 WirelessMAN air interface is well suited for this application. It includes thorough authentication originally designed to prevent commercial theft of service.*
IWN	*Database access requires user authentication and system utilizes end-to-end AES encryption*
JTRS JPO	*Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability. The JTRS SCA and its multi-channel, multi-mode operation capability supports communications security and programmable cryptographic capabilities up through Type 1 Security (for DoD requirements) using multiple single levels of security. This capability also applies to voice communication.*
NASA's Earth Alert Program	*802.11 FIPS 140 network pending. Already deployed on Navy ships and bases. Working on a mobile deployed system that will have portable sensor kits and video capabilities. Plus an uplink to send data back to a central location.*
NCS	
NCSBCS	
NLECTC -- Southeast	*The SAAC system will use encryption and can support a secure data transmission requirement.*
NLETS	*NLETS is offering this item by using multiple vendor partners who offer this service via the NLETS Frame Relay Network.*
NRL / InfraLynx	*InfraLynx provides several levels of security, such as 3 DES, AES and WEB standards.*

OLES

On behalf of NIJ's AGILE Program and COPS, standardization in conjunction with Project 25/ TIA TR 8, Software Defined Radio Forum, NPSTC SDR Working Group, GLOBAL, etc. Laboratory test and evaluation of prospective standardized approaches, and test and evaluation of standard products.

Oregon RAINS

SWARM supports many content attributes that can be used to target content for specific individuals. These attributes, which are established by the content publisher and verified by a simple and expeditious review process, ensure that only the appropriate users will receive the information. Additionally, it is assumed that some standard policies will be in place restricting the users ability to discuss or interact with the content outside of the SWARM system.

Project 25

As previously noted, a standardized P25 wireless network has multiple levels of security, including network access and encryptions when it is required.

Project MESA

The Project MESA SoR has established very high requirements with regard to the protection and security of information transported over that network. During our April 2003 Project MESA meeting, the management of the U.S. Federal Government's Public Safety Wireless Network (PSWN) submitted a proposal to the Service Specification Group (SSG) for inclusion of the existing Federal encryptions standards embodied in Type 1, Type 2, Type 3, and AES P25-TIA-102 Standards and Technical Service Bulletins in the proposed Project MESA specifications. That proposal was approved by the MESA SSG and forwarded to the Project MESA Steering Committee (SC), who also approved it and returned it to the Technical Specifications Group(s) for their drafting into a Project MESA specification and eventual standards.

Question Summary with Comments

 # 16   Ability to ensure secure exchange of information.

Organizations that Have This Capability   Comments (if any)

AGILE	*Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.*
CapWIN	*CapWIN supports numerous encryption methods including 3DES and FIPS 140-2. Encryption for all data transfer is "end-to-end".*
Coast Guard Rescue 21	*The new Rescue 21 system will provide 'protected' communications capability (i.e., DES, DES-OFB, AES).*
ComCARE Alliance	*Using public-key infrastructure to implement authentication, non-repudiation, and confidentiality requirements.*
IEEE 802	*The 802.16 WirelessMAN air interface is well suited for this application. It includes thorough security and encryption features designed to safeguard corporate data. Its security features are upgradeable for even stronger security.*
IWN	*End-to-end AES encryption is provided.*
JTRS JPO	*Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability for DoD. The JTRS SCA supports communications security and programmable cryptographic capabilities up through Type 1 Security for DoD requirements.*
NASA's Earth Alert Program	*Utilizing Nextel wide area networks with AES encryption. 802.11 FIPS 140 network pending. Already deployed on Navy ships and bases. Working on a mobile deployed system that will have portable sensor kits and video capabilities. Plus an uplink to send data back to a central location.*
NCS	*For select users only.*
NCSBCS	
NLECTC -- Southeast	*The SAAC system will use encryption and can support a secure data transmission requirement.*
NLETS	*NLETS is offering this item by using multiple vendor partners who offer this service via the NLETS Frame Relay Network.*
NRL / InfraLynx	*InfraLynx provides several levels of security, such as 3 DES, AES and WEB standards*
OLES	*On behalf of NIJ's AGILE Program standards development through Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.*
Oregon RAINS	*Content is always secured when stored and when in transition via networks. All transactions and communications between Scout clients and SWARM "Hive" servers are secured using the Web Services Encryption standard.*

Project 25	*The Project 25 standards were designed to allow for the use of the Federal government's Type 1, Type 2, and Type 3 encryption algorithms, and also proprietary algorithms. The use of several approved Type 3 encryption algorithms including DES, Triple-DES, and the AES are fully specified in Project 25 standards. Type 1 encryption is defined in classified government documents. Users may also choose to use a company's proprietary encryption algorithm with the full knowledge of the complications that such a choice may introduce into interoperability.*
Project MESA	*Project MESA participants recognize the responsibility to the public and to the public safety field personnel that the new standardized technology will serve. Therefore, they are making every effort to ensure an extremely high level of security and threat protection for both its wireless networks and the terminals that serve on that network. Every consideration is being given these issues as the Project MESA process moves forward. For example, it has already been proposed that the existing Project 25 encryption be incorporated in Project MESA. These standards were designed to allow for the use of the Federal government's Type 1, Type 2, and Type 3 encryption algorithms, and also proprietary algorithms. The use of several approved Type 3 encryption algorithms, including DES, Triple-DES and the AES, are fully specified in Project 25 standards. Type 1 encryption is defined in classified government documents. Users may also choose to use a company's proprietary encryption algorithm with full knowledge of the complications that such a choice may introduce into interoperability.*
PSWN Program	*The PSWN Program has influenced the future of public safety wireless data security. Specifically, operational testing has enabled the program to determine the suitability of secure technologies for public safety (i.e., secure two-way paging). Contributions to Project MESA wireless data standards will help to shape and define international wireless data security requirements. Lastly, the program's examination of emerging secure technologies (i.e., biometrics) has equipped the public safety community with the information necessary to make sound technology decisions in the future.*
SNSP	*All communications are encrypted. We have a gateway that allows for secure faxes as well.*

 # 17 Capability of high speed data transfer to allow fast exchange of text, image, and streaming video information.

Organizations that Have This Capability   Comments (if any)

AGILE	*Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.*
CapWIN	*The system is capable of handling this, however, there is currently no high-speed public safety data network available for the Capital area.*
ComCARE Alliance	*Dependent on wireless technologies of participating agencies.*
COPS	*In conjunction with Project MESA and IAB, standardization of approaches for transferring critical building information (e.g., fire alarms, temperature, heat generation rates, etc.) to fixed and mobile sites.*
DoT ITS Program	*Highway TV camera video, available from some traffic management centers, is compressed NTSC video.*
IEEE 1512	*IEEE 1512 does not deal with the security layer --- that is considered local implementation choice on level of system security deemed necessary*
IEEE 802	*The 802.16 air interface is designed for broadband data rates of tens of megabits per second. Because of its multimedia design, this data can be mixed with real-time transfers, like voice and video telephony.*
IWN	*High-speed data transfer is typically provided by commercial services.*
JTRS JPO	*Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability for DoD using the new Wideband Networking Waveform (WNW).*
NASA's Earth Alert Program	*802.11 FIPS 140 network pending. Already deployed on Navy ships and bases. Working on a mobile deployed system that will have portable sensor kits and video capabilities. Plus an uplink to send data back to a central location.*
NCS	*In support of key user requirements.*
NCSBCS	
NIST	*NIST has worked on these issues in the context of 3G wireless systems in the past. NIST is now developing the same capabilities in the context of wireless ad hoc networks, which are ideal for mission-critical operations.*
NLECTC -- Southeast	*The SAAC system has been designed with a dynamic capability to widen the RF front end to provide a wideband capability for data transmission.*
NLETS	*NLETS is offering this item by using multiple vendor partners who offer this service via the NLETS Frame Relay Network.*
NRL / InfraLynx	*InfraLynx can deliver up a maximum 20 Mbps of thru put*
OLES	*On behalf of NIJ's AGILE Program and COPS, and in conjunction with Project MESA and IAB, standardization of approaches for transferring critical building information to fixed and mobile sites. Coordination with Project 25, NPSTC working groups, and the Software Defined Radio Forum). Laboratory test and evaluation.*

Oregon RAINS

The Scout client receives a manifest of information that it should have locally. Scout client only transfers the deltas, or those pieces of information that have changed or are new. Additionally, the Scout client has the intelligence to organize the receipt of information by importance and size. Alerts and incidents receive the highest priority.

Project 25

Project 25 standardized technologies were never intended to transport high-speed data services.

Project MESA

Project MESA technology will transmit at data rates in excess of 2 mega bits. The applications to be transmitted will include, but not be limited to, full-motion black and white and color video, complex graphics, complex images, detailed data files, and very large text files. These files will be accessible to and from host(s), mobile(s), and portable subscriber units.

PSWN Program

The PSWN Program has analyzed many emerging technologies that support high-speed, large-bandwidth transmissions. The program sought to validate claims that these new technologies would enhance public safety communications and operations through detailed technical reviews and analysis. Based on these analyses, agencies are now prepared to select the technologies, as they become commercially available, that best fit their organizational and operational needs.

 # 18   Ability of transparent on-scene system access to multiple information systems regardless of differing data base system architectures and data formats.

Organizations that Have This Capability   Comments (if any)

AGILE

Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.

CapWIN

This is the heart of the CapWIN query subsystem. It allows seamless access to several back-end data sources. This is accomplished though a combination of Templar Corporation's Informant product, IBM's MQseries and XML data transfer.

Coast Guard Rescue 21

Rescue 21 can provide on-scene access to multiple information systems through a gateway located at the Group Communication Center.

COPS

In conjunction with Project MESA, IAB, and GLOBAL, standardization of procedures for acquiring and transferring building data.

DoT ITS Program

ITS would prefer that there be only one interface between transportation and public safety information systems.

IEEE 1512

IEEE 802

The 802.16 air interface supports connections to standard network layers, including Internet Protocol and ATM. It is independent of specific information system formats.

NASA's Earth Alert Program

Utilizing a wide area Nextel network we are able to process data two-way through the web to multiple locations.

NCSBCS

NLETS

NLETS is offering this item by using multiple vendor partners who offer this service via the NLETS Frame Relay Network.

NRL / InfraLynx

The InfraLynx acts as a conduit for data to different systems and architecture. The InfraLynx follows Layer 3 of the OSI stack

OLES

On behalf of NIJ's AGILE Program and COPS, and in conjunction with Project MESA, IAB, and GLOBAL, standardization related to acquiring and transferring building data. Coordination with Project 25, NPSTC working groups, and the Software Defined Radio Forum). Also, test and evaluation of prospective standardized approaches and/or test and evaluation of products and services.

Project 25

The standardized P25 network can transport authorized services to any one of a combination of external network interfaces. Routing of that information to specific groups on net would be done by the network controller in accordance with predefined talk-group designations. The host(s) and slaves would be responsible for the routing of the wireless network traffic.

Project MESA

The founders of Project MESA fully anticipate that since it is simply a transport vehicle it can and will include the necessary interfaces and protocol conversion tables to access any predefined outside network or host front-end processor. The key will be for the users to identify those applications, services, networks, and protocols early on so they can be prioritized as to work effort and importance to the community at large. (Note Attachments A & B of the Project MESA SoR at www.projectmesa.org.)

 # 19 Ability to remotely access a user's agency/jurisdiction data communications infrastructure when the user roams outside the radio coverage area of the user's agency/jurisdiction infrastructure.

Organizations that Have This Capability   Comments (if any)

AGILE

Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), test and evaluation of standard products to determine the degree of interoperability among them, and test and evaluation of commercially available and emerging interoperability devices.

Coast Guard Rescue 21

Rescue 21 provides the capability for mobile units to access the Coast Guard communications infrastructure when operating outside of their normal operating area through other regional remote fixed facilities and through the Coast Guard Data Network.

IEEE 802

This capability could be supported by the 802.16 air interface, particularly as roaming features are added through the ongoing 802.16e project.

IWN

IWN is a nation-wide trunked radio system that allows nation-wide roaming (as required).

NASA's Earth Alert Program

By using a satellite uplink and a laptop PC we can dock or wireless network in many different users.

NCS

NCSBCS

NIST

The ad-hoc networks being developed at NIST have hooks to PSTN, to the Internet, and to the cellular networks.

NLETS

NLETS is offering this item by using multiple vendor partners who offer this service via the NLETS Frame Relay Network.

NRL / InfraLynx

The InfraLynx is an extension of the local infrastructure. The use of satcom technology enables the first responder to reach back in remote areas OR areas of devastated communications.

OLES

On behalf of NIJ's AGILE Program, standardization through Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), test and evaluation of prospective standardized approaches (before they are offered to standards committees), test and evaluation of standard products to determine the degree of interoperability among them, and test and evaluation of commercially available and emerging interoperability devices.

Oregon RAINS

RAINS-NET Scout clients are IP based and will work across the public Internet, wireless communications channels or dial-up services. Once a connection is established, the Scout client requests information from the Hive to get updates specific to the users profile.

Project 25

As noted in the wireless voice section, remote roaming and visitor roaming are controlled by a number of factors, in addition to the standardized technology. While the wireless network may allow and authenticate users, the host(s) and the slave(s) authentication must also take place. Network design, implementation, and operation are the controlling factors beyond the technology platform used.

Project MESA

As noted previously, the Project MESA SoR does not anticipate roaming functions as might be expected in a traditional LMR, cellular, or personal communications service. In fact, it is anticipated the future network specification and eventual standards will be very structured and closely controlled to ensure maximum benefit to the emergency responders, a minimum of threats to system security, and maximum use of the original investment by making certain that those who are paying for the service have access to it when and if they need it. Transient users will be authorized high-speed transport access on an as-needed basis to respond to a specific emergency. Inter-agency voice communications would not normally be considered one of them. The Project MESA network implementation plan would include "gateways" to other transport services to accommodate users who were outside the network but need to transmit or receive data from the network. The details, issues, and problems associated with those "gateways" have not yet been addressed.

SNSP

We have dial-in capability as well as satellite phones that we can use for data as well.

 # 20   Reliable system operational performance (including fault tolerant to individual system failures, redundant coverage from adjacent sites, full service during routine maintenance, and resistant to impact of catastrophic events).

Organizations that Have This Capability   *Comments (if any)*

AGILE	*Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.*
CapWIN	*The CapWIN system is fully redundant as to system hardware (clustering, dual power, etc.), software (HACMP, load-balancing, etc.), and communications (redundant communications links and hardware configurations). A fully redundant network center is planned in the future to protect against catastrophic events.*
Coast Guard Rescue 21	*The Rescue 21 system has a guaranteed operational availability of 99. 5%, which is based on a number of factors, including redundant coverage from adjacent sites, full service during routine maintenance, and resistant to impact of catastrophic events. The Rescue 21 system also includes recovery from catastrophic failure due to disaster to 70% system operation within 24 hours and full operation within 7 days.*
IEEE 1512	*Local implementation choice.*
IEEE 802	*The 802.16 air interface includes adaptive link control. This means that, depending on the quality of the over-the-air channel, the physical modulation and coding methods are adjusted to ensure reliable communications with maximum transmission efficiency. The use of redundant base stations will improve resistance to catastrophic events.*
IWN	*System reliability is provided in the form of fault tolerant or redundant system components and development of robust sites. Redundant coverage is not typically a design criterion due to expense.*
NASA's Earth Alert Program	*By being flexible in the receipt and delivery of information we can access information from many wireless networks and satellite solutions, plus we can revert to land line when all else fails.*
NCSBCS	
NIST	*The wireless ad hoc networks are being designed to degrade gracefully in face of such failures.*
NLETS	*NLETS is offering this item by using multiple vendor partners who offer this service via the NLETS Frame Relay Network.*
NRL / InfraLynx	*The InfraLynx was designed to be a communication infrastructure reconstruction tool. InfraLynx is the contingency.*
OLES	*On behalf of NIJ's AGILE Program, standards development through direct technical support to Project 25/TIA TR8, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), and/or with Standards Development Organizations such Committee T1, ITU, etc. Laboratory research, analysis, test and evaluation of prospective approaches, and test and evaluation of standard products.*
Oregon RAINS	*Designed as a public IP network system, SWARM supports load balancing, redundancy, edge content caching, etc. The system is capable of fitting into the most stringent environments.*

Project 25

Data service transported over a P25 standardized network would be subjected to the same strengths and limitations as voice services but may also meet other barriers in the face of a catastrophic event, since the voice network is primarily self-contained and requires very little if any access to other non-public safety services. Therefore, the level of redundancy and the quality of service is an organization matter under their total jurisdiction and control.

Project MESA

While the issue of network reliability hinges as much on the network plan, design, implementation, and operational maintenance and management as it does on the technology platform, the Project MESA SoR has established very high technical requirements to ensure very secure, robust service is always available to the first responder, either on a fixed basis or a "Hot-Spot" basis, as may be required by the incident and those who respond to it. (Please note Project MESA SoR at www.projectmesa.org).

 # 21   Flexible and dynamic system administration (includes administration of on-scene wireless data networks).

Organizations that Have This Capability   Comments (if any)

AGILE

Program efforts associated with Standardization (through direct technical support to Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), and test and evaluation of standard products to determine the degree of interoperability among them.

CapWIN

Each agency participating in the CapWIN system administers their own users and functionality. In addition, control of incident creation/modification and communication method (IM, chat, email) is available to all users.

Coast Guard Rescue 21

Rescue 21 system administration can be accomplished from any regional communication center via the Coast Guard Data Network.

IEEE 802

Vendors who implement the standard will typically include remote systems management tools.

IWN

IWN architecture includes centralized system management and administration.

JTRS JPO

Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability for DoD using the new Wideband Networking Waveform (WNW).

NASA's Earth Alert Program

802.11 FIPS 140 network pending. Already deployed on Navy ships and bases. Working on a mobile deployed system that will have portable sensor kits and video capabilities. Plus an uplink to send data back to a central location.

NCSBCS

NIST

The wireless ad hoc networks being developed are working on self-organized networks, bypassing need for system administration.

NLETS

NLETS is offering this item by using multiple vendor partners who offer this service via the NLETS Frame Relay Network.

NRL / InfraLynx

The InfraLynx system provides numerous off-the-shelf wireless devices, a cell switch and satcom data modem. All are designed to work seamlessly with existing first responder wireless gear or can be programmed for talk groups, emergency alerts and mutual aid. The satellite system can be programmed by the system administrator in a primary or back mode. InfraLynx uses a series of advanced network monitoring tools for wireless and wired communications.

OLES

On behalf of NIJ's AGILE Program, standards development through direct technical support to Project 25/TIA TR8, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), and/or with Standards Development Organizations such Committee T1, ITU, etc. Laboratory research, analysis, test and evaluation of prospective approaches, and test and evaluation of standard products.

Oregon RAINS

Future directions of RAINS-NET SWARM will allow for the dynamic administration of the network and users, and will also provide support for additional communications via blue-tooth, and other wireless protocols.

Project 25

As previously noted, the P25 standards allow for a great deal of flexibility and dynamic control of the network's authorized users, features, options, and configuration, and reconfiguration. However, given it has limited data transport capabilities in comparison to those really required by the public safety community, benefits to that community may be limited.

Project MESA

The Project MESA SoR is predicated on a fully digital transport system, which has aggregated a number of telecommunications services into what is generally classified as "data". Those "data" services would include, but not be limited to, voice, traditional data services, text files, slow scan and full-motion black and white and color video, complex graphics, complex images, data from sensors and monitors, data regarding velocity, density, chemical components, texture and many other data files and services. It is anticipated any or all of these services can be transmitted on a peer-to-peer, peer-to-group, peer-to-host(s) or dispatch center or group-to-group or any other combination of the above, assuming proper authorization and either dynamic programming or preprogramming of users and system identifications (IDs) has taken place. Finally, it is assumed that proper system planning and design preceded the initial installation.

 # 22   Ability to effectively and efficiently exchange data between agencies/jurisdictions, e.g., by employing common data representation structures and exchange formats and protocols.

Organizations that Have This Capability   Comments (if any)

AGILE	*Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry).*
ARJIS	*Standardized reporting and incidents for 50 agencies and all jurisdictions inputting data. Justice XML data exchange standards are utilized for all interfaces.*
BJA	*Supporting the development of the Justice XML Data Model and other data exchange standards such as the Justice Information Exchange Model.*
CapWIN	*CapWIN employs TCP/IP for all communications and XML for all internal data transfers. We are attempting to meet all applicable standards for all external interfaces (Global, 1512, etc.)*
CJIS	*The CJIS WAN provides connectivity between state agencies. Messages are formatted in accordance with the ANSI/NIST standard for the exchange of fingerprint information and transmitted in a SMTP/MIME envelope.*
ComCARE Alliance	*Developing and promoting standards-based message formats such as the XML-based Common Alerting Protocol and hazard-specific formats within a flexible open-standards-based network-centric interoperability architecture.*
COPS	*Laboratory support to Information Technology Interoperability Standardization in conjunction with the Global Justice Information Sharing Initiative ('Global') Advisory Committee, and its Infrastructure/Standards Working Group.*
DoT ITS Program	*IEEE Standard 1512 was specifically designed to address this requirement, in the domain of transportation incidents.*
IEEE 1512	*This is its primary purpose.*
IWN	*IWN infrastructure utilizes packet based IP network protocol.*
NASA's Earth Alert Program	*See previous Wireless Data information. We can be placed behind a firewall or we can be a web based subscription service depending on the needs of the customer.*
NCSBCS	
NLECTC -- Southeast	*The SAAC Team is working towards integrating the P 25 trunking standard.*
NLETS	
NRL / InfraLynx	*The InfraLynx is the conduit, providing the collection and dissemination of data to effectively enable existing first responder information systems to perform as designed*
OLES	*On behalf of NIJ's AGILE Program and COPS, standards development through GLOBAL Standards Committees. In particular, the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry. Laboratory support to facilitate specification of standards.*
Oregon RAINS	*RAINS-NET utilizes standard XML, XACML, common alert protocols, and web services, and supports any SQL compliant database.*

RISS

RISS utilizes and distributes the RISS Extensible Markup Language (XML) Data Exchange Specification (RISSDES) to facilitate electronic integration and information sharing between RISS and riss.net node agency partners.

SNSP

We have remote access e-mail capability.

 # 23   Ability to rapidly access subject information at critical decision points from both field and base locations, including but not limited to information regarding identification (photos, fingerprints, etc.) and activity (criminal history, wants/warrants, reporting/contact history, etc.).

Organizations that Have This Capability   *Comments (if any)*

AGILE	*Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees, Project 25, and Project MESA.*
ARJIS	*Photos connected statewide via Cal-Photo, Wants/Warrants, and other data from 15 disparate databases linked through a Global Query function accessible in the field and office*
BJA	*Supporting multiple state implementations of integrated justice information systems through grants via the National Governor's Association.*
CapWIN	*Query access is conducted through VCIN (Virginia), MILES (Maryland), and WALES (D.C.). The capabilities of these systems (none are NCIC2000 compliant) is the limiting factor.*
CJIS	*NCIC has wide availability.*
COPS	*Laboratory support to standardization in conjunction with GLOBAL Standards Committees, Project 25/TIA TR 8, Software Defined Radio Forum, NPSTC SDR Working Group, SAFECOM, etc.*
IEEE 1512	*This is allowed with standard to access these data elements and exchange them from systems developed with other standards.*
IWN	*Access to subject information that can be accessed with low-speed connections is supported by the IWN. Access to subject information that requires high-speed connectivity is supported by IWN user access to communications center support staff (who have high-speed database access).*
NASA's Earth Alert Program	*We use the solution to report many types of information and display in the text format or in GIS format, depending on the needs of the customer.*
NCSBCS	
NIST	*NIST has developed a network architecture that provides communications at the scene of an emergency and is also connected to the Internet, to the PSTNs, etc.*
NLETS	
OLES	*On behalf of NIJ's AGILE Program and COPS, standardization through direct support to GLOBAL Standards Committees, Project 25/ TIA TR 8, Software Defined Radio Forum, and NPSTC SDR Working Group. Laboratory support to facilitate standardization.*
Oregon RAINS	*RAINS-NET Scout client technology was built for survivability, therefore offline access to information stored locally via the Secure Local Device Caching technology provides the ability to retrieve and review information that may not be reachable in a true crisis (networks down, facilities unavailable, etc.) SWARM technology also provides the ability to securely hook into other 3rd party data sources.*

PSWN Program

The PSWN Program partnered with the FBI Wireless Applications Test Program (WATP) to assess data access systems and determine best practices/lessons learned from "real-world" operations. As a result, the program developed a practical guide for law enforcement first responders on establishing rapid data access. Law enforcement responders now have a resource available through the PSWN Program Web site for establishing access to subject data (e.g., fingerprints, crime reports, and mug shots) internally and through external databases such as the National Crime Information Center (NCIC).

RISS

RISS provides secure access to all resources available via the RISS Secure Intranet (riss.net) to authorized riss.net users from both field (remote user) and base (riss.net node) locations.

SNSP

We have a 24/7 Ops center to reach back at the CDC.

 # 24   Ability to enter information once, then share and reuse that information among all entities that require it.

Organizations that Have This Capability   Comments (if any)

AGILE	*Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures).*
ARJIS	*Single entry completed for law enforcement functions, jail bookings, and court citations – in process for DA, Probatin, 290-sex registration, and state databases*
BJA	*Supporting multiple state implementations of integrated justice information systems through grants via the National Governor's Association.*
CapWIN	*CapWIN supports "broadcast" communications though IM/chat/email functionality.*
Coast Guard Rescue 21	*The Coast Guard has this capability through its backbone data network.*
ComCARE Alliance	*Using a network-centric messaging architecture to leverage single inputs across all systems that require it.*
DoT ITS Program	*This is not a requirement, but an objective. Particularly within and among a multi-agency, or multi-disciplinary response to an incident.*
IEEE 1512	
NASA's Earth Alert Program	*With our web based design we allow local government to gain access to the latest technology and then we can role that data up to the state and Federal levels. Depending on the user profile access is available. The data can be used in any way they feel is appropriate.*
NCSBCS	
NIST	*NIST is developing a publish/subscribe server for this purpose.*
NLETS	
OLES	*On behalf of NIJ's AGILE Program, standardization through direct technical support to GLOBAL Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures.*
Oregon RAINS	*RAINS-NET allows information to be entered once and easily distributed through the content targeting features to authorized participants. More importantly, that information can be pre-positioned prior to general availability, activated and deactivated in real-time, and revoked, pulled back, or replaced without end-user intervention. Information remains controlled by Central Command.*
RISS	

Question Summary with Comments

 # 25   Ability to query/access multiple data sources using one request that is routed to multiple entities simultaneously.

Organizations that Have This Capability   *Comments (if any)*

AGILE

Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures).

ARJIS

Global Query (web based application) hits 15 disparate databases with a single query

BJA

Supporting multi-jurisdictional criminal intelligence information sharing via six Regional Information Sharing Centers (RISS) and MATRIX.

CapWIN

Templar Corporation's Informant product is used to "spawn" transactions to multiple entities and data sources simultaneously. Further, this data is then "fused" and presented intelligently (summary data first, lack of redundant information) to the originating user.

CJIS

Currently built into the NICS program.

IEEE 1512

NASA's Earth Alert Program

The system provides for multiple entities to access and manipulate data based on the profile. We can take information feeds and process them logically by location or by the profile.

NCSBCS

NLETS

OLES

On behalf of NIJ's AGILE Program, standardization through direct technical support to GLOBAL Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures.

Oregon RAINS

RAINS-NET SWARM technology is a Command and Control model, meaning content is targeted for distribution and then pushed to the end-users. The SWARM Hive is capable of receiving information from multiple sources, automatically targeting that information, and then pushing to all of the affected users.

RISS

Multiple data sources available via the RISS Secure Intranet (riss.net) may be queried/accessed by authorized riss.net users with one request that is simultaneously routed to multiple data sources through use of RISSSearch, a master (federated) search tool developed within RISS. Additionally, intelligence database pointer systems available via the RISS Secure Intranet (riss.net) may be queried/accessed with one request.

Question Summary with Comments

 # 26   Capability of standardized security, including functions and features that can be used to satisfy reasonable security requirements of any entity within a broader security framework.

Organizations that Have This Capability   Comments (if any)

AGILE

Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures).

ARJIS

All 50 ARJIS agencies are linked together via a private secure intranet – ARJISNET – and utilize LDAP security center for authentication

BJA

Supporting the Global Systems Security Compatibility Task Force.

CapWIN

All security efforts are geared to the lowest (or highest depending on your perspective) common denominator. Therefore, the system has been designed in such a way as to allow flexibility in security features/methods i.e., encryption methods, authentication/authorization methods, etc. Currently, IBM's Wireless Everyplace Connection Manager handles these functions for the client-side and Cisco and Nortel routers and firewalls handle back-end security and VPN.

CJIS

All CJIS systems are covered by the CJIS Security Policy developed and approved by the APB.

Coast Guard Rescue 21

The new Rescue 21 system will provide "protected" communications capability (i.e., DES, DES-OFB, AES). Access to sensitive information is controlled at each terminal location.

ComCARE Alliance

Utilizing standards-based PKI functions (including WS-Encryption, WS-Signature, and SAML).

COPS

As a direct complement to the standardization of information sharing approaches occurring through GLOBAL Infrastructure/Standards Working Group, and in conjunction with the Federal CIO Council and XML.gov efforts related with the ebXML Registry, the design and development of an effective and efficient security model.

IEEE 1512

Local implementation choice when implementing standard within a system.

IWN

IWN incorporates security features that satisfy system certification and acceptance requirements.

JTRS JPO

Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability for DoD. The JTRS SCA and its multi-channel, multi-mode operation capability supports communications security and programmable cryptographic capabilities up through Type 1 Security for DoD requirements using multiple single levels of security. This capability also applies to voice communication.

NASA's Earth Alert Program

Current solutions have password protection and security sufficient for use by government agencies, and we have the capability to increase the level of security depending on the requirements.

NCSBCS

NLETS

OLES

On behalf of NIJ's AGILE and COPS, standardization support to GLOBAL, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedure). In conjunction with GLOBAL, the Federal CIO Council, and XML.gov, development of an effective and efficient security model.

Oregon RAINS

The SWARM system employs the standard AES symmetric cipher for securing all information stored in the system and during the transmission. Web Services Encryption is employed to protect the transactions. Also, the secure local cache is a new and innovative way to ensure that content stored on the end-user's PC is protected and controlled by the SWARM system.

RISS

RISS deploys standardized network security measures and policies for any member agency information technology system approved for establishment as a node to the RISS Secure Intranet (riss.net). The RISS Secure Intranet (riss.net) authentication and access control technology and methodology allow the resource owner (RISS Intelligence Centers and node partners) full control of access to and use of their specific resource.

Question Summary with Comments

 # 27 Ability to exchange information with Computer-Aided Dispatch (CAD) systems.

Organizations that Have This Capability   Comments (if any)

AGILE

Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees, IEEE 1512 Standards Committee, Project 25 and Project MESA).

ARJIS

CAD data is shipped from San Diego Police for mapping and statistics – a programmatic interface is being developed to embed the Global Query function into each individual agency's CAD system

BJA

Supporting the Law Enforcement Information Technology Standards Council efforts to develop functional standards for CAD and RMS systems. Coordinate funding for multiple CAD/RMS implementations.

CJIS

Many states draw on CJIS services for their CAD systems.

ComCARE Alliance

Providing standard interfaces and data unit for system-to-system exchange.

DoT ITS Program

IEEE 1512

This is the primary purpose: to exchange data from CADs and transportation management systems.

NASA's Earth Alert Program

We also connect location information from a phone equipped with GPS technology through a PBX so the Call Center Operator can see the location of the caller. We also allow the Call Center Operator to see persons on a screen and then either call the person or send a text message or an alert.

NCSBCS

NLETS

NPSTC

Via the above-mentioned CDPD network, the CDPD allows mobile units statewide to access the statewide MSHP CAD Dispatch system.

OLES

On behalf of NIJ's AGILE Program, standardization through GLOBAL Standards Committees, IEEE 1512 Standards Committee, Project 25 and Project MESA.

Oregon RAINS

RAINS-NET SWARM can receive and deploy dispatches from multiple sources, automate the targeting of the information and then ensure that the target base receives those notifications. As an example, RAINS-NET is currently working with 911 centers to receive their automated dispatches of emergency personnel and vehicles and then target the information for alert notification to schools, building owners in downtown areas, security personnel, etc.

 # 28   Capability of field photo scanning and image file distribution.

Organizations that Have This Capability   Comments (if any)

AGILE

Program efforts associated with Standardization (through direct technical support to GLOBAL, Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), R&D (for example through grants facilitating software defined radio development), test and evaluation of prospective standardized approaches (before they are offered to standards committees), test and evaluation of standard products to determine the degree of interoperability among them, and test and evaluation of commercially available and emerging interoperability devices.

ARJIS

Booking photos are distributed via hand helds to the field and via short range wireless if available. No photo scanning from the field at this time.

CapWIN

Image file distribution is possible though email and instant messaging.

CJIS

Distributed capture and dissemination of fingerprint images.

ComCARE Alliance

Messaging standards provide for images and other binary objects.

IEEE 1512

This is being done within the NYC deployment of IEEE 1512.

NASA's Earth Alert Program

Future capability for the wide area Nextel solution and a solution already deployed with the 802.11 solution.

NCSBCS

NIST

The NIST Testbed has developed a prototype image transmission.

NLECTC -- Southeast

The SAAC system is based on a standard PC-based architecture. Therefore any specific peripherals can be connected via USB ports for integration into the field. This could include scanners, fingerprint readers, etc.

NLETS

OLES

On behalf of NIJ's AGILE Program standardization GLOBAL, Project 25, Project MESA, NPSTC working groups, and the Software Defined Radio Forum), test and evaluation of prospective standardized approaches, test and evaluation of standard products to determine the degree of interoperability among them, and test and evaluation of commercially available and emerging interoperability devices.

Oregon RAINS

RAINS-NET Scout client incorporates "Spot Reports," which allows users to report activities, attach audio, video, or still images along with descriptive text. This information is sent back to the Command Center where it can be reviewed and then distributed out for other system users.

RISS

Various types of media files, including but not limited to .jpg, .bmp, .gif, .avi, .doc, and .ppt files, can be distributed over the RISS Secure Intranet (riss.net) and posted to specific RISS resources.

 # 29 Ability to have near-real-time distribution of text messages to multiple organizations responding to a large event.

Organizations that Have This Capability *Comments (if any)*

AGILE
Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees, IEEE 1512 Standards Committee, Project 25 and Project MESA).

CapWIN
Using email and instant messaging and coordinated through the "global directory".

CJIS
LEO and NLETS have an alert notification program.

ComCARE Alliance
Using standards-based data networks and a geospatial directory service to permit instant notifications to agencies based on geographic responsibility / interest and other criteria.

COPS
Laboratory support to standardization in conjunction with GLOBAL Standards Committees, Project 25/TIA TR 8, Software Defined Radio Forum, NPSTC SDR Working Group, SAFECOM, and IEEE 1512.

DoT ITS Program

IEEE 1512
It's the number one user requirement.

IWN
IWN will support real-time distribution of text messages. Testing with FBI-Dallas Emergency Response Network will occur in mid-2003 timeframe.

JTRS JPO
Software Defined Radio (SDR) technology using the JTRS open standard Software Communications Architecture (SCA) is used to provide this capability for DoD using the new Wideband Networking Waveform (WNW). WNW allows for creation for the tactical internet where this kind of information can be shared.

NASA's Earth Alert Program
We have the ability to do both real time and near real time solutions. We currently can track personnel in a real time manner.

NCSBCS

NIST
The NIST Testbed is working with real-time audio/video streaming in addition to text messages, as well as multicasting.

NLETS

OLES
On behalf of NIJ's AGILE Program and COPS, standards development and associated laboratory support to GLOBAL Standards Committees, Project 25/ TIA TR 8, Software Defined Radio Forum, NPSTC SDR Working Group, and IEEE 1512.

Oregon RAINS
RAINS-NET technology is not an instant messaging system, but a near real-time distribution of text (and other media when desirable) and alert notifications. SWARMS can be segmented by Work Groups, Job Functions, Authorization Levels, etc.   This enables the initiators of events to easily target the base of users that should receive that information.

PSWN Program
The PSWN Program tested and piloted the real-time distribution of text messages using secure paging technology. Paging functionality was demonstrated and the technology was employed in support of agencies involved in the 2002 Winter Olympics in Salt Lake City, UT. The two-way paging solution provided an option for immediate and quick dissemination of critical information to Olympic venue commanders and key personnel.

RISS

The RISS Secure Intranet (riss.net) provides the capability for distribution of text messages to multiple users via e-mail to any device used to access riss.net capable of receiving e-mail messages.

 # 30   Ability to access information related to hazardous materials, water sources, floor and building plans, utility maps, weather forecasts, topographic terrain, and other background data that may influence how public safety practitioners approach or conduct operations at an incident.

Organizations that Have This Capability   *Comments (if any)*

AGILE	*Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees and working groups of the InterAgency Board for Equipment Standardization and Interoperability (IAB).*
ARJIS	*Most data is maintained in separate agency CAD systems*
BJA	*Supporting efforts by the IACP to establish standards for incident command systems.*
CapWIN	*Access to HAZMAT databases/datasources is currently being added to the system.*
Coast Guard Rescue 21	*Mission essential applications provide the Coast Guard access to information related to law enforcement, search and rescue, marine safety, aids to navigation, and hazardous materials. Weather forecasts are distributed, via the Coast Guard Data Network and marine information broadcasts, to Coast Guard units and the maritime public.*
ComCARE Alliance	*Providing shared situational awareness and geospatial information from multiple data sources on a map interface, or to any other IP address(es) the subscriber designates. Encouraging the development and sharing of such on-line resources due to standards basis of the E-Safety Network, and the national market it would create for vendors.*
COPS	*Research and development related to the use of new and emerging wireless transceiver/sensor technologies aimed at providing temporary situational awareness and direct communication links for first responders. Standardization in conjunction with GLOBAL Standards Committees and the InterAgency Board for Equipment Standardization and Interoperability (IAB).*
DoT ITS Program	*Particularly information related to transportation systems, including transit systems, and particularly including traffic congestion and infrastructure condition information.*
IEEE 1512	*HazMat is standardized in IEEE 1512.3-2002. Exchange of weather, road condition, etc., is contained in IEEE 1512.1-2003.*
IWN	*Access to subject information that can be accessed with low-speed connections is supported by the IWN. Access to subject information that requires high-speed connectivity is supported by IWN user access to communications center support staff (who have high-speed database access).*
NASA's Earth Alert Program	*Our solution is limited only by the needs of our customers and their budget.*
NCSBCS	
NIST	*NIST's BFRL is working not only on organizing and sharing building data, but making it available in a graphical user interface that meets the needs of the first responder. Part of that display would be a floor plan of the building ('static' data). Along with this would be 'dynamic' data such as location of fire activity, people, etc. BFRL will use the Virtual Cybernetic Building Testbed (VCBT) to simulate a fire and then format data from the VCBT in a display interface suitable for use by a first responder.*
NLECTC -- Southeast	*SAAC is capable of Internet access and CD ROM access. Information available in these domains or other PC-compatible domains are accessible.*

NLETS

OLES

On behalf of NIJ's AGILE Program and COPS, research and development of wireless transceiver/sensor technologies aimed at providing temporary situational awareness and direct communication links for first responders. Standardization in conjunction with GLOBAL Standards Committees and the InterAgency Board for Equipment Standardization and Interoperability (IAB).

Oregon RAINS

When the above-named data is entered into RAINS-NET's Hive, the information (in many file formats) is preemptively distributed to a secure cache on the end user's Windows-enabled device, which means the information remains accessible and useful even when the network is down. Also, the user is notified that the information has arrived and should be reviewed.

 # 31   Ability to access medical/treatment records (both those required to ensure proper treatment of incident victims and/or prisoners and those records obtained under warrant).

Organizations that Have This Capability   Comments (if any)

AGILE

Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees and working groups of the InterAgency Board for Equipment Standardization and Interoperability (IAB).

BJA

Supporting the State Correctional Directors in the development of performance standards for managing health information.

ComCARE Alliance

Yes. Some of our members are prepared to do exactly this. We see this in the same way that the prior question suggested that there are multiple data sources that may be related to an incident.

IEEE 1512

IEEE P1512.2 tracks victims but does not contain any medical information.

NCSBCS

NIST

The Testbed has developed the capability to access such information through the Internet and other more secure means.

NLECTC -- Southeast

SAAC is capable of Internet access and CD ROM access. Information available in these domains or other PC-compatible domains are accessible.

NLETS

OLES

On behalf of NIJ's AGILE Program, standardization support to GLOBAL Standards Committees, and working groups of the IAB.

Oregon RAINS

Medical records entered into the Hive will be securely delivered to, and accessible by, all properly authenticated users.

 # 32   Ability to access information regarding pending investigation/litigation of a particular subject.

Organizations that Have This Capability   Comments (if any)

AGILE

Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures).

BJA

Supporting the development of model policies for access to electronic records associated with criminal investigations/litigation.

COPS

Standardization in conjunction with GLOBAL Standards Committees.

IWN

Access to subject information that can be accessed with low-speed connections is supported by the IWN. Access to subject information that requires high-speed connectivity is supported by IWN user access to communications center support staff (who have high-speed database access).

NIST

The Testbed has developed the capability to access such information through the Internet and other more secure means.

NLECTC -- Southeast

SAAC is capable of Internet access and CD ROM access. Information available in these domains or other PC-compatible domains are accessible.

NLETS

OLES

On behalf of NIJ's AGILE Program and COPS, standards development through GLOBAL Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures.

Question Summary with Comments

 # 33   Ability to access court scheduling information.

Organizations that Have This Capability   Comments (if any)

AGILE

Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures).

ARJIS

On-line access to all agencies

BJA

Supporting the National Center for State Courts, Conference of State Court Administrators, and the National Association of Court Managers through various initiatives.

NIST

The Testbed has developed the capability to access such information through the Internet and other more secure means.

NLECTC -- Southeast

SAAC is capable of Internet access and CD ROM access. Information available in these domains or other PC-compatible domains are accessible.

NLETS

OLES

On behalf of NIJ's AGILE Program and COPS, standards development through GLOBAL Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures.

Oregon RAINS

SWARM supports the ability to push out notifications and schedules as a simple content type to end users.

 # 34   Ability to automatically link disposition data with charge data on subject RAP sheet/CCH information.

Organizations that Have This Capability   *Comments (if any)*

AGILE   *Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures).*

BJA   *Supporting disposition linkage to criminal history records through the national criminal history records improvement program.*

CJIS   *We have programs in this area to support NICS and enhance our CCH.*

NLETS

OLES   *On behalf of NIJ's AGILE Program and COPS, standards development through GLOBAL Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures.*

Question Summary with Comments

 # 35 Capability of automatic dissemination of disposition data to appropriate local, state, and federal agencies/databases.

Organizations that Have This Capability   *Comments (if any)*

AGILE
Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures).

ARJIS
Accessible to all 50 participating agencies on-line via a name or case-number query

BJA
Supporting the criminal records improvement program through the National Law Enforcement Telecommunications System to the FBI NCIC.

NCSBCS

NLETS

OLES
On behalf of NIJ's AGILE Program and COPS, standards development through GLOBAL Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures.

Oregon RAINS
This type of information is quite easy to automate and distribute using the RAIN-NET SWARM system.

 # 36   Ability to access current resource data (including personnel, equipment, materials, etc.) of multiple agencies/jurisdictions responding to a multi-agency/jurisdictional event by authorized users in the respective agencies/jurisdictions.

Organizations that Have This Capability   *Comments (if any)*

AGILE

Program efforts associated with Standardization (through direct technical support to GLOBAL Justice Information Sharing Initiative Standards Committees, and in particular to the standardization of XML implementation approaches, XML data element dictionary, XML Schema, and Information Sharing Registry, and to the standardization of architectural frameworks, and information sharing processes and procedures).

CapWIN

This is currently only possible through IM and email.

ComCARE Alliance

The E-Safety Network is designed to enable exactly this. It now shows hospital availability, but any resource information can be shared.

COPS

Standardization in conjunction with GLOBAL Standards Committees, IAB, IEEE 1512, and Project MESA.

IEEE 1512

Asset information (including that of personnel) in IEEE P1512.2 and IEEE 1512.1-2003.

NLETS

OLES

On behalf of NIJ's AGILE Program and COPS, standardization in conjunction with GLOBAL Standards Committees, IAB, IEEE 1512, and Project MESA.

Oregon RAINS

When multiple agencies/jurisdictions have agreed to share information, they do so by publishing information to centralized operation centers containing Hives, where it will be distributed to all authorized users across participating multiple agencies/jurisdictions, whether heterogeneous or homogeneous. There are several mechanisms for supporting the automated delivery and cataloging of this type of information on the end-users Scout client.

PSWN Program

The PSWN Program has conducted (and is currently conducting) several activities requiring extensive data collection, resulting in the need to make resource data available on a large scale. Customized central databases serve as a single reference source for relevant information (e.g., spectrum used and types of fixed and user equipment deployed). Currently, the program is supporting the development of an extensive database of information for public safety agencies covering the U.S. northern border with Canada.